GANGRENE OF THE HOLLOW VISCERA.[1]

A REPORT OF THREE CASES, WITH ILLUSTRATION.

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On March 26, 1902, I was called by Dr. Hugh McIntire, of this city, to see with him and with his colleague, Dr. John C. Thompson, also of this city, Mr. E. M., a collector at one of the local stations of the frontier.

This man had been a politician for a number of years and was justly popular among his friends. He had been a heavy drinker, or one would say he had been a steady drinker of perhaps five or six drinks of whiskey per day. He was a robust man, weighing about 175 pounds, and had always enjoyed apparently good health. He had been for years troubled with constipation, and had tried various remedies for the cure of the same.

Prior to my consultation with Dr. McIntire and with Dr. Thompson, the man had after some little dissipation and an extra fit of constipation remained at home for several days, suffering from slight nausea, vomiting, and diarrhœa, but had been about the house. He had, however, the day previous to my visit, decided that he was well enough so he could return to his work at the office, and so announced to the attending physician, and he had gone to the office.

He had, however, to return home because of the distress in his abdomen; shortly after his arrival home, he was taken with very severe pains, and, although he suffered intensely and was advised that he needed surgical interference, he refused to have me called until twenty-four hours later, and then he was not suffering so much pain, but he had been given liberal doses of opiates. On March 28, 1902, I found him with a temperature of 99.5° F., with a pulse of 140, and respirations were 20. He had evidently been in

[1] Read before the Medical Union of Buffalo, New York.

great distress. His face was covered with beady perspiration, and he was blanched somewhat, but was not dull or apathetic.

His abdomen was immensely swollen and he was tympanitic. A few hours before I saw him he was very sensitive all over the abdomen to any manipulation or examination, but complained of a very severe and constant pain in the epigastrium. No localized pain in the region of the appendix. When I examined him, he would allow, either on account of the opiates that he had had, or on account of bowel paralysis, a palpation, and that without evidence of pain that was intense.

The general symptoms were so marked that at the time I was not at all sure that the trouble was not appendicitis, even though the previous history was indefinite and the immediate history gave the epigastrium as the seat of the greatest pain, and that the general peritoneum had when I saw him become involved, and that he was beyond hope of operative interference. After consulting with the doctors, although he had refused, for the twenty-four hours previous, to have any operative interference, when assured by me that his chance of recovery was commensurate with the speed with which surgical interference was undertaken, and that his condition without operation was entirely hopeless, he agreed, and was sent to Riverside Hospital, where I operated as soon as he could be prepared.

A six-inch incision was made in the epigastrium, because that was the point where the pain had been most pronounced. As soon as the opening was made into the peritoneum there flowed out a large amount of serous bloody fluid. This fluid was purulent, was not yellow, but was as described, serous and somewhat streaked with blood.

Examination showed that the greater part of the small intestine was normal in appearance and feeling; that the colon was not involved, was not distended; that there were not adhesions of one coil of intestine to another, was no localized point of inflammation, and no abscess cavity "walled off."

A part of the small intestine was found to be very much inflamed, and for a space of about twenty-six inches was almost in a necrotic condition. Eighteen inches of the gut, which was practically black, were resected.

This small intestine was of darker color than is usually encountered in cases of strangulated hernia. It was necrotic, but did

not have the same black eolor as would be found in dry gangrene involving the external skin, where the necrotic area shows jet black. This was a condition of moist gangrene.

The omentum which was pushed up showed no pathological indications. It was not adherent. The mesentery, however, was swollen, hard, filled with nodules varying in size from a pea to that of a pigeon's egg. The mesentery supplying the whole area of necrotie intestines was involved. It is usually easy to turn the eoils of the intestines from side to side, that is, in normal peritoneal eavities the mesenteric attachment forms no obstaele to the manipulation neeessary to make a full and complete exploration. Not so in this case. Any attempt to move the coils involved was met with such resistanee from the mesenterie attaehment that it seemed almost brittle, and one was eonstrained to use care lest disruption of the bowel should occur.

The caliber of the bowel in general was increased, but the thiekness of the bowel wall was several times over-inereased. The lumen was empty, save for the serous fluid which surrounded the part involved, and whieh evidently eame from the bowel and the mesentery. With great care the incision was retracted, the gut lifted, examined, the limitations determined, and the reseetion performed, removing about eighteen inches of the blackest gut. A medium-sized Murphy button was placed in position and the large amount of omental surface that was cut through as the necrotic gut was severed was tied off with medium-sized catgut, and then sewed "over and over" with fine catgut.

The place where the Murphy button was inserted was reinforced with twelve fine Lembert sutures of fine silk, and the whole was closed up. The external wound was elosed with silkworm gut, but several drains of iodoform gauze were left *in situ*.

The small intestine that was not involved by this necrotic area looked perfectly normal, was reddened but little, even though the whole abdomen was filled with the serous fluid, and although the intestines were all distended by flatus. The necrotie areas were dark, eyanotie, reddened, and in the worst part were blackened, and the eireulation was evidently entirely shut off.

The mesentery was mueh swollen, very hard, and seemed to be filled with nodes. Usually, the mesentery is soft, very pliable, and can be pulled about to examine the intestines and to see the different sections of the gut that are under diseussion. In this

instance the swelling was so great in the mesentery that the gut could not be moved without rupturing the peritoneal covering of the mesentery.

The mesentery was swollen in nodular masses, and the whole looked or rather felt like the nodes that appear in a rapidly growing cancer, say of the breast, but of course was all injected with the reddening of the general peritonitis. When the hæmostatics were thrust through this swollen and much injected mass of mesentery, as was done in the tying off of the mesentery preparatory to the removal of the necrotic gut, there was little bleeding, but a considerable oozing of a kind of serum from the ruptured peritoneal coating and from the places where it was cut through.

The general appearance was as if there was cancer of the mesentery and following necrotic area of the gut. Examination of the nodes, however, with the microscope did not show any cancerous growth, but the appearance was of a very much inflamed and overswollen area of mesentery. The patient died six hours after the operation.

This man had no specific history; he had been married and had three beautiful and healthy children. He had never had any skin trouble of any kind that might be mistaken for specific trouble. His wife and children are still living in the city, and are all well and healthy. His arteries were hardened to some extent, and he had a resistant impulse at the radial, but the artery could be compressed so that the current could be stopped. He had been a steady drinking man for years, and yet was never intoxicated. The appendix was examined, and there was nothing to lead any one to believe that there had been any origin of the trouble at that point.

The second case was a patient of Dr. C. M. Brown, of this city, who asked me to see him in consultation with him, giving me the following history:

J. P., forty-five years old, and a cooper by trade; weight, 140 pounds when at work and in fair health. Previous history.—Discovered that he had syphilis about one year ago, and has not had regular treatment since that time, but has taken enough, so that there was no eruption evident on the skin at this time. He had some inflammatory condition of the bladder about six years ago..

The patient was taken sick about one month ago, and has had nausea since that time, gradually getting into such condition that he had not retained anything on his stomach for more than a few minutes for four days. Has had twenty-seven stools in the twenty-four hours previous. He was in great distress, although he had been well supplied with opiates during that time. His temperature was 98° F.; pulse, 72; respiration, 18. The pulse was soft, weak, but regular. The vomitus was the water and fluid recently taken and streaked with mucus and blood. The stools were remnants of liquids taken by bowel for nourishment, yellowish and foul smelling. No solid particles, no blood in stools I saw, but there had been some traces.

His face had the typical abdominal distressed appearance. He had emaciated a great deal in the period of his sickness, and had tried, and very intelligently, all the remedies for nausea, and, finally, had had a period of rest for several days of the stomach, and has been fed by bowel, but had not retained anything in the bowel for some hours. Physical examination showed a tympanitic abdomen, very tender, and greatly distended. Nothing could be made out by palpation, as there was a high degree of distention.

With practically normal temperature, pulse, and respiration, yet the general appearance of the man indicated that he was in a critical condition. His face was the picture of distress, and was somewhat reddened, cheeks sunken, eyes bright, intellect unimpaired. There was a beady perspiration over his face and his body was clammy. He could move himself about in bed with difficulty.

Believing that he had a gastric ulcer or acute pancreatitis, he was at once transferred to the German Deaconess Hospital and was prepared for operation, which was undertaken the next morning.

He appeared in the morning as he did the night previous, much distressed, and complaining of the great pain in the abdomen; his tongue was dry and the abdomen was distended. I was assisted by Dr. Brown and Dr. Swertfeger. He was given chloroform at first after a few breaths of ethyl chloride, but it was necessary to change to ether after a few moments, as he did not do well under chloroform.

When he was fully narcotized, the abdomen could be palpated; then it was quite evident that the trouble was in the epigastric region rather than below the umbilicus, and accordingly an incision

was made in the median line of the abdomen and the peritoneal cavity was opened for about five inches. As soon as the cavity was opened there flowed from it a small amount of serous fluid, not having the appearance of purulent material, but of a serosanguineous tinge.

There presented immediately under the opening a coil of intestines, which in size would be considered as the colon, but which on examination was found to be small intestine and somewhat enlarged, but the intima showing more thickening than actual enlargement of the diameter of the gut. This was very much congested, almost black, and extended from one end to the other of the necrotic part, about sixteen inches.

The lumen of the gut was not entirely occluded, as it was evident that a certain amount of fluid was being passed along.

I attempted to lift the swollen and necrotic part, but found that the mesentery attached was also so very much thickened that it was not at all flexible, but was so gorged with the inflamed condition that, even when only slight and very gradual movements were made, the peritoneal covering of the mesentery began to bleed. There was some tearing. I examined very carefully, and did not find any evidences of pus in the peritoneal cavity. The gall-bladder was not distended, was not inflamed, was not occluded. The appendix was not inflamed, and there was no evidence of any involvement of the colon at any place. The pancreas was soft and not at all inflamed. The stomach was not attached by adhesions to the place where the gut was inflamed, and there was no evidence of perforation.

This was the second case I had seen, and, knowing that this man was not in good condition, I made careful examination of the surrounding parts and sewed up the wound in the abdomen, returning the man to bed, giving, of course, a very unfavorable prognosis in the case. The man lived until the next day.

In this case, as in the first case cited, the mesentery was hardened into many nodes, which filled the whole width of the mesentery and made it very hard, and not the usual œdematous feeling encountered in the intestine.

The intestine involved is well illustrated in the accom-

panying sketch (Fig. 1), being so nearly black that it was necrotic to all intents and purposes. The whole length of the necrotic mass was delivered after a careful effort; but it was so involved with all the surrounding mass, it was quite out of the question to attempt its removal.

The nodes looked like carcinomatous nodules, but the liver was not involved, and primary carcinoma of the omentum is, of course, unknown, and is seldom found in the mesentery, and then unless extending from the involved organs near at hand.

The first case had at the time I saw him first no temperature, but had a pulse of 140, while this man at no time had either any increase in the pulse or in the temperature. When he was admitted to the hospital his temperature was 99° F., and his pulse was 76.

They were both undoubtedly cases of gangrene of the intestine following thrombus of the mesenteric artery, or rather the branch that supplied this part of the intestine. There was a well-marked line in both instances; the greater part of the intestines were of normal color and consistency. The colon was in both cases normal in appearance, and in neither case did there appear any blood in the vomitus or in the stools.

In one case there was a well-recognized case of syphilis, and in the other case the arteries were hardened, and the man had been a steady drinker for a number of years. In each case there had been a period of sickness preceding the attack, each had been constipated, each had a period of gastritis followed by intense abdominal pain, vomiting, tympanites, distention, tumefaction, both presented the same appearance of the bowel, one was resected and one was not, and both died.

The third case presented the same appearances, but had a different etiology, and was a more favorable subject.

On November 4, 1902, I was asked by Dr. C. M. Brown to see with him Joe F., aged nine years, the eighth healthy child of healthy but hard-working parents. At the time I saw him he gave no history of injury, but it was stated to me (as it had been to Dr. Brown before me) that the boy was all right four days before this,

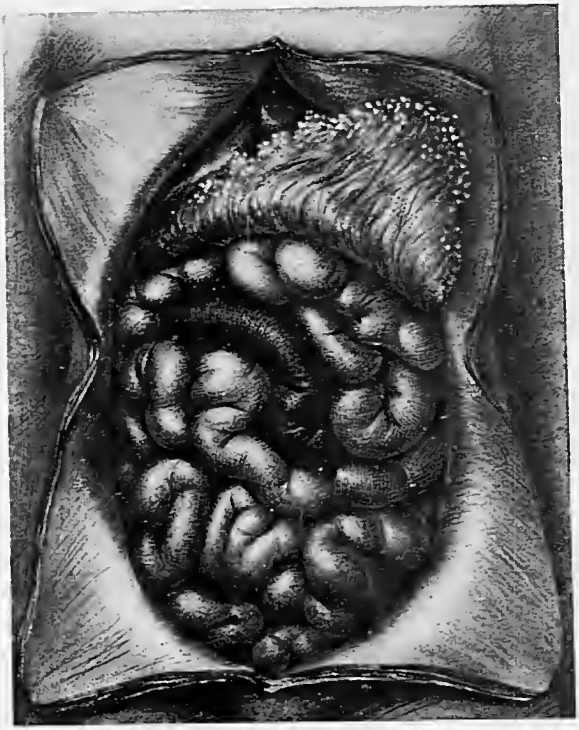

FIG. 1.—Illustrating the appearance of the abdominal cavity in Case II, in which one coil of the small intestine was totally black, and yet was surrounded by other coils of normal color.

when he suddenly was taken with the colic and his abdomen became very sore, and his every movement was a source of pain to him. Dr. Brown had treated him by giving him anodynes for a short time until the great prostration had worn away, and then he had given him a liberal portion of physic, and he had apparently improved, until the day previous to my seeing him, when he had developed great tenderness in the abdomen.

He had vomited a great deal and was very tender all over the abdomen; there was no rigidity of the muscles, and no localized tenderness except that perhaps a little more tenderness was shown over the umbilicus. I might say here that after the operation the boy seemed in a precarious condition for some time, and there was not forthcoming an explanation of his condition, and the boy's grit was somewhat weakened by his suffering. He confessed to his mother, that the day before he was taken sick he had purloined the football of some of his playmates, and that after it was discovered, two of them caught him in a lonely field, threw him down, and, while the one held him, the other kicked him with all his might in the "belly" several times, and that it was after this experience that he staggered home with the attack of colic, but he was game and did not "peach" on the other boys, either on account of his own wrong-doing or on account of his idea of "grit." I had him sent at once to the "Sisters' Hospital" and prepared for operation, and with the assistance of Dr. Brown and Dr. Riley I opened the abdominal cavity, and in this case as in the other cases found about eighteen inches of the small intestine very much blackened, necrotic in places, but with the colon intact and not at all involved.

The appendix was a little reddened, but was not involved. The mesentery was in this case, as in the others mentioned, much swollen, thickened, and hard, the lumen of the gut was not increased in diameter, but the walls were much injected, full of serum, blood, and not of pus.

The boy at the time I saw him first had a normal temperature, but a pulse of 120. The appendix was not removed, a bad prognosis was given, but the boy got well and is well to-day.

He had stormy passage, was out of his mind for several weeks, had incontinence of urine and fæces, tore his wound open, passed bloody mucus by bowel for some days, rejected all food, and in general was not promising, but eventually began to keep liquids,

gained some control of his bowels, the bedsores improved, the general tone improved, and finally he was moved home, and after a tedious delay was restored to health and is alive to-day.

I believe all three of the above cases were caused by a thrombus of the artery of the mesentery. The first from a sclerotic artery, consequent on his long alcoholic history, and perhaps from an undiscovered specific taint; the second from sclerotic artery from specific taint with some slight injury from the work which he followed, being a cooper, or perhaps from the gastritis and general indisposition under which he had labored for the month previous.

The third from the traumatism resulting from several vigorous kicks in the abdomen administered by his boy friends.

I have seen several men in hospital practice who have died from severe injuries resulting from having heavy bodies fall on them or from having fallen great distances, and the certificate has usually read "internal injuries," and it is usually conceded that this means rupture of the spleen or liver.

However, after seeing these three cases, I am convinced that there are many cases where death is caused by gangrene of the intestine following thrombus, or embolus in sclerotic arteries, and a long alcoholic history, or syphilis coupled with some slight injury or gastritis, or, as in the third case following, extensive bruising of the abdomen. The drawing herewith presented (Fig. 1) was prepared under my direction, and presents the appearance of the first two cases very well.

There was one coil of the intestine that was black; and when further exploration was made, it was seen that the coil extended among the other coils; but as the abdomen was opened, the one black coil was of such appearance in comparison with the rest as the illustration shows.